

UTAH SAFETY BELT OBSERVATIONAL SURVEY

JULY 2006 REPORT

INTRODUCTION

According to the National Highway Traffic Safety Administration (NHTSA), deaths and serious injuries caused by motor vehicle crashes could be reduced by approximately 50% with proper and consistent use of safety belts. To help increase safety belt use, traffic safety advocates have used a combined approach which involves legislation, public information and education efforts and enforcement.

In 1986, the first safety belt use law was enacted in Utah and required all front seat passengers and the driver to use safety belts. Since that time the law has gone through several revisions and currently states that all drivers and passengers must use safety belts. The law is secondary for people ages 19 and older and primary for people under 19 years of age. In addition, children under the age of five must be restrained in an appropriate child safety seat.

Educational and enforcement programs are also used to increase awareness of the importance of safety belts. Public education efforts include training, presentations, media campaigns, safety fairs, and high visibility enforcement efforts. These activities are conducted by the Utah Highway Safety Office (UHSO), state and local health departments, hospitals, law enforcement agencies, fire/EMS, businesses and other partnering agencies committed to making Utah's roads safer. To determine the effectiveness of these legislative and preventative efforts, a survey has been conducted each year since 1986 to measure safety restraint usage rates. The survey results show that these efforts have been effective in increasing safety belt use. Utah's safety belt usage rate has increased from 18% in 1986 to the current rate of 88.6% (Figure 1).

BACKGROUND

In 1991, the NHTSA established guidelines for conducting safety belt use surveys, which gave the states much discretion in survey design and implementation. In 1998, these guidelines were changed when the Secretary of Transportation was directed to allocate, over a 5-year period, funds to states whose safety belt use rates meet certain requirements. The allocations to states, resulting from this seat belt incentive grant, are based on savings in medical costs to the federal government because of a use rate higher than the national average or from an increase in their reported use rates. To determine this allocation, the states needed to conduct an annual survey which meets the new criteria.

The criteria directed that a state survey must be: probability based; based on observed shoulder belt use; designed to produce estimates with a relative precision of +/- 5 percent; designed to study front seat outboard passengers of all passenger vehicles during all daylight hours for all days of the week; designed to include the largest geographic areas containing at least 85 percent of the state's population; and properly documented.

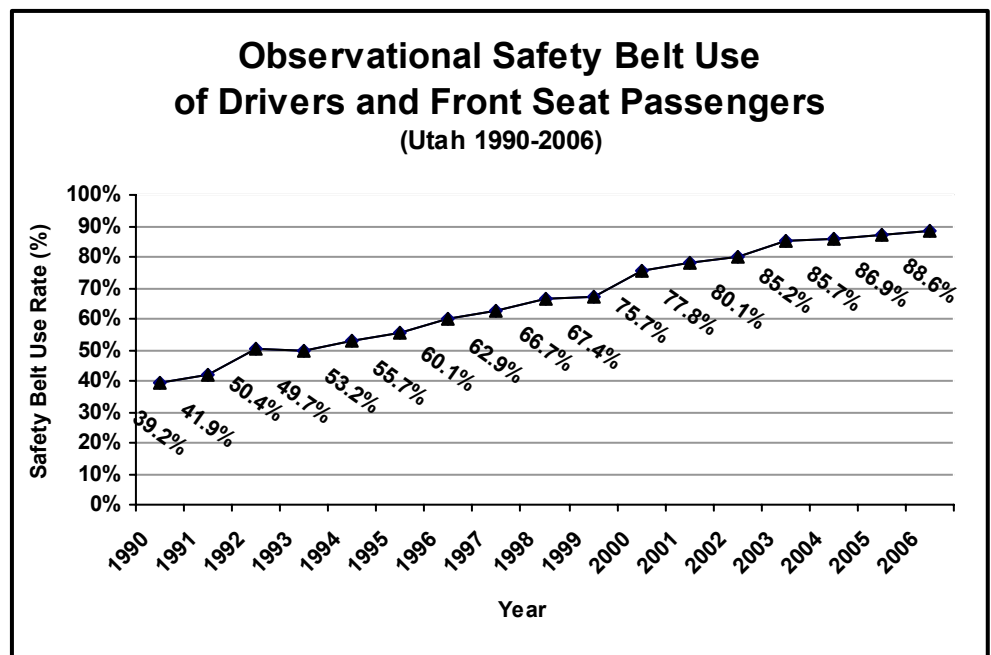


Figure 1

While the safety belt incentive funding ended in 2003, NHTSA continues to require states to follow the survey guidelines, as survey results are used to help determine the national use rate. In addition, beginning in 2003, the states were also required to conduct the survey in June each year. This time period marks the end of the national Click It or Ticket Campaign and also helps determine the effectiveness of this high-visibility safety belt enforcement effort. It also helps demonstrate the state's highest possible safety belt usage rate for the year.

SURVEY METHODOLOGY

Sample Stratification: Utah encompasses an area of 84,916 square miles, and the census for the year of 2000 was 2,233,169. Utah has a varied geographic distribution of its population with large rural and frontier areas. Over 76% of the state's population lives within four counties clustered against the Wasatch Mountains. This leaves the remaining 25 counties with less than 24% of the population. Based on national criteria to exclude no more than 15% of the state's population, the six most populated counties (Cache, Davis, Salt Lake, Utah, Washington, and Weber) were selected for the survey.

Sample Selection: Road segments were defined by data from the Utah Department of Transportation (UDOT). It was determined that there was an average of 282 road segments in each of the 6 sampled counties. Through random selection, 27 state road segments in each county (162 total) were selected for observation. The 27 road segments within each county were defined as rural or urban roadways and were randomly selected with probabilities of selection corresponding to vehicle miles traveled (VMT).

Day of Week and Time of Day: A day of the week, time of day, and direction of travel were randomly selected for each road segment. In addition, no more than six sites were selected for a 40-minute observation in a single day. All time periods were during daylight hours, starting at 7:30 AM and ending at 4:30 PM. To minimize travel time and distance traveled, sites were grouped into geographic clusters.

Sample Size: To determine sample size, based on previous surveys, it was estimated that approximately 15,000 observations would need to be acquired from the 162 sites for a single survey in order to meet the required accuracy of an approximate marginal error of less than 1%, at a 95% confidence.

Data Collection: Each site included a specific road segment using a mile post, time of day, day of week, and direction of travel. All passenger cars, pickup trucks, vans, and sport utility vehicles were observed for a period of 40 minutes at each site. Commercial trucks and motor homes were excluded. Only drivers and front outboard passengers were observed. All lanes of traffic traveling in the predetermined direction of travel were observed. Observers were trained using a Field Observer's Instruction Manual and were provided with survey observation forms and information on each of the 162 sites to help locate the exact location to be observed.

Statistical Analysis: Completed data collection forms were returned to the UHSO where the data was entered into an electronic format and provided to a statistician for analysis.

Child Restraint Survey Methodology: The NHTSA does not require states to conduct child restraint observational studies and does not provide criteria or approve methodology for conducting these studies. To ensure the results are accurate, the UHSO chose to follow the safety belt survey guidelines established by NHTSA in 1998.

A summary of the survey guidelines are as follows: children ages 0-10 were observed for restraint use in the six selected counties; children ages 0-4 were observed for child safety seat use and children ages 5-10 were observed for child safety seat OR safety belt use; safety restraint use among children was observed for 40 minutes at 27 sites per county; only local roadways with speed limits of 40 miles per hour or less were selected; the days of the week, time of day, direction of vehicle travel, and specific location chosen for observation were randomly selected; to assure both child restraint and safety belt surveys were not conducted on the same day, the days in which adult safety belt use were being studied were excluded; passenger cars, pickup trucks, vans, and sport utility vehicles were observed; all seating positions in the vehicle were eligible for observation if the surveyor could positively identify restraint use or non-use.

RESULTS—ADULT SURVEY

The results of this study show the overall safety belt use rate for Utah, as well as the use rate for each of the 6 counties surveyed. The use rates for female and male occupants are also provided for comparison as well as the rates as seen on interstates versus local roadways.

A total of 57,308 drivers and front seat passengers were observed. Overall safety belt usage for all vehicle types was determined to be **88.6%**. This estimate has a margin of error of $\pm 0.26\%$, well within NHTSA specifications of $\pm 5\%$. The rate demonstrates an increase of 1.7% from the 2005 study.

In addition, two of the six counties surveyed increased their usage rates from the previous year. Figure 2 shows the safety belt usage rates for the 2005 and 2006 studies for the six counties surveyed.

Gender by County

When comparing belt use among male and female drivers and front seat passengers, it was determined that females were more likely to wear safety belts than males. Females buckled up 89.7% of the time, whereas 84.3% of males used seat belts. The results for safety belt usage among male and female occupants in 2005 and 2006 are summarized by county in Table 1.

Road Type by County

When comparing safety belt use among drivers and front seat passengers on highways and local roadways, it was determined that more people used safety belts while traveling on highways when compared to local roadways. On highways, 89.7% of people used seat belts, whereas 84.4% of people buckle up on local roadways.

Table 2 provide the safety belt use rates for both local roadways and highways for each county. The table does not include a usage rate for highways in Cache County since the Utah Department of Transportation's roadway database does not show any major highways in that county. All roads selected for observation in Cache County were considered to be local.

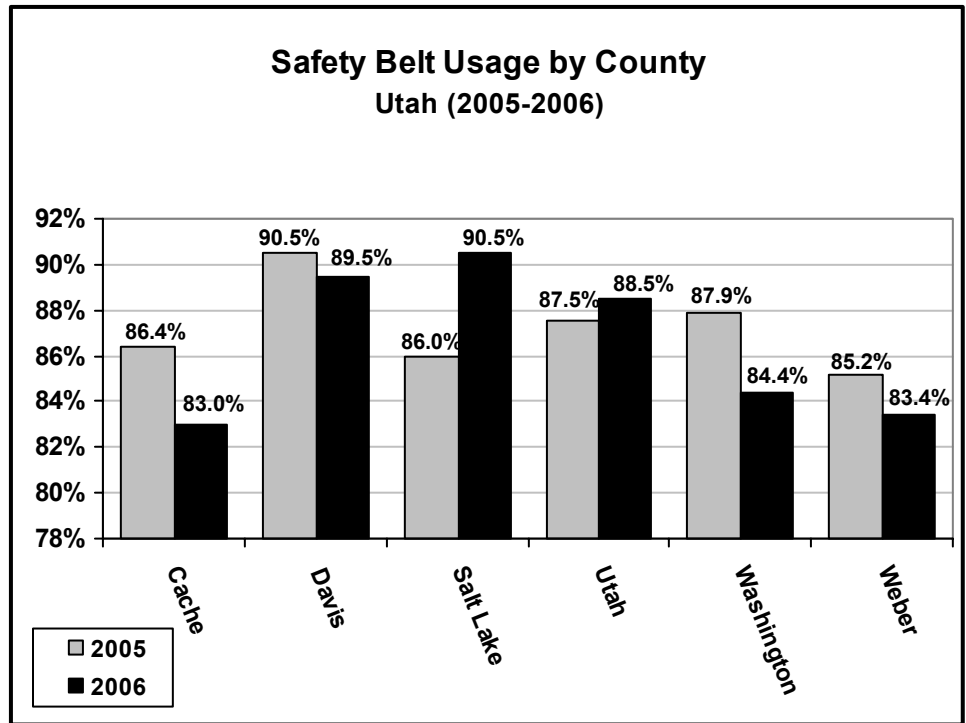


Figure 2

TABLE 1: SAFETY BELT USE AMONG MALE AND FEMALE OCCUPANTS BY COUNTY (2005-2006)

	MALE OCCUPANTS		FEMALE OCCUPANTS	
County	2005	2006	2005	2006
Cache	83.2%	78.6%	90.6%	87.7%
Davis	89.2%	86.7%	92.1%	93.1%
Salt Lake	83.3%	88.9%	89.3%	92.8%
Utah	85.4%	86.2%	90.1%	91.2%
Washington	85.0%	81.3%	91.7%	88.3%
Weber	82.9%	82.4%	88.3%	84.5%
Overall	85.0%	84.3%	90.4%	89.7%

TABLE 2: COUNTY SAFETY BELT USE BY ROAD TYPE (2006)

County	Local Roadway	Highway
Cache	83.0 %	N/A
Davis	87.9%	90.9%
Salt Lake	88.9%	92.6%
Utah	82.7%	92.0%
Washington	81.3%	86.5%
Weber	83.0%	84.4%
Overall	84.4%	89.7%

CHILD RESTRAINT SURVEY

Background

The UHSO has been conducting child restraint observational studies since 1984. The ages of children observed in these studies has varied throughout the years in order to mirror changes in Utah's safety restraint law and national child passenger safety guidelines.

One of the most important steps in improving Utah's child restraint law occurred in 2000, when legislators voted to upgrade the law to make child safety seat use mandatory for children through age 4. Since that time, continued efforts have been taken by traffic safety advocates statewide to create a law that protects all children. Such a law would support the national recommendations that children ride in an appropriate safety seat until they are approximately 80 pounds or age 8.

A brief history of the changes in child restraint survey methodology are as follows:

- Between 1984 and 1990, children under the age of five were observed for child safety seat or safety belt use.
- From 1991 through 1997, children ages 0-2 were observed for child safety seat use and children 2-8 were observed for safety seat or seat belt use.
- Surveys conducted in 1999 and 2001 observed children up to age 10. Children ages 0-2 were observed for child safety seat use and children ages 2-10 were observed for safety seat or seat belt use.
- Since 2003, children ages four and younger have been observed for child safety seat use and children ages 5-10 have been observed for child seat or safety belt use.
- Child restraint usage was not studied in 1998, 2002 and 2005 due to funding constraints.

Due to these many changes in the observed age groups for child safety seat use, it is difficult to compare the 2003, 2004 and 2006 studies with previous ones.

Results

During the 2006 study, 3969 children under the age of 10 were observed for safety restraint use. The use rate for this age group was found to be **92.9%**. This demonstrates an increase of 5.2% from the 2004 rate of 87.7% (see Figure 3).

When comparing age groups, safety restraint usage decreases as children grow. The 2006 survey results show that **94.8%** of children under five years were restrained in a child safety seat, whereas only **87.0%** of children ages 5-10 were restrained in a safety seat or seat belt. However, safety restraint use increased among both age groups from the 2004 study (see Figure 4).

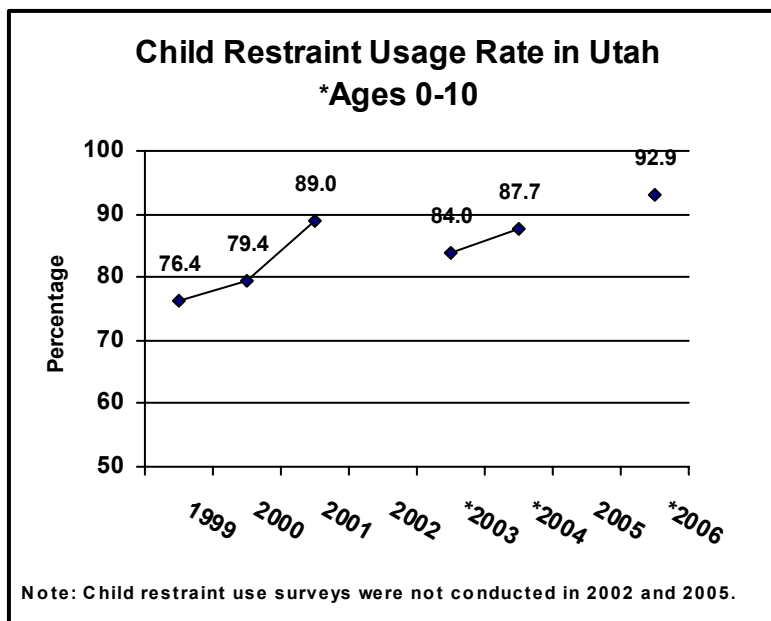


Figure 3

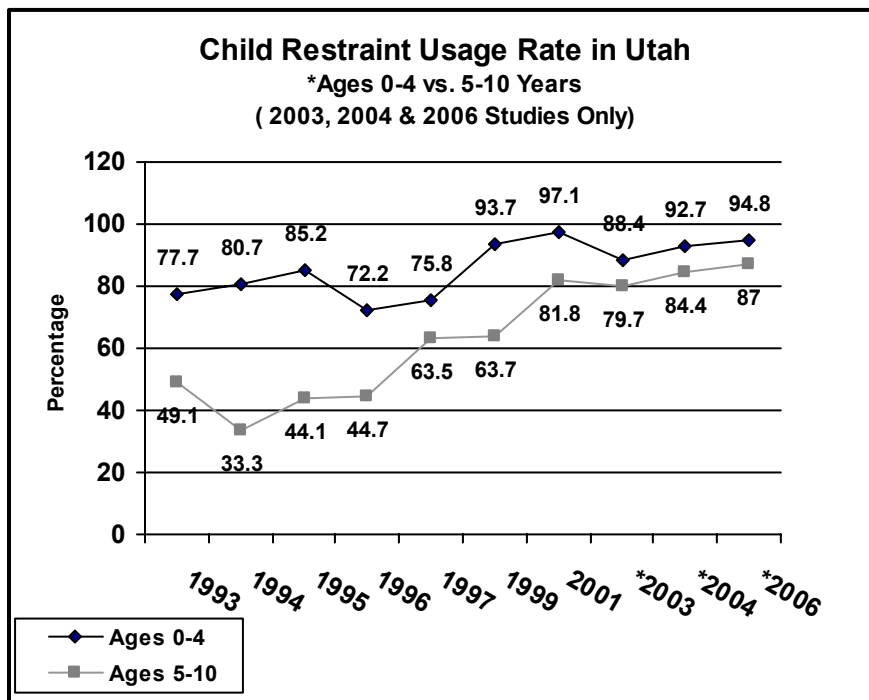


Figure 4

Of the six counties surveyed, five of the six showed increases in child restraint use from 2004. Table 3 displays use rates by age group for each of the six counties surveyed. It also provides the rates for 2004 and 2006 for comparison.

CONCLUSIONS

Adult Safety Belt Use

- The weighted statewide result for 2006 is 88.6% +/- 0.26%.
- The largest increase in overall safety belt use was seen in Salt Lake County (90.5%, +4.6%).
- Much of the improvement in Salt Lake County is due to an increase in safety belt use of males (88.9%, + 5.6%).
- Safety belt use among females in Salt Lake County also showed the largest increase (92.8%, +3.5%).
- Cache County had the lowest rate of safety belt use among surveyed counties (83.0%).
- Excluding Cache County, where only local roadways are surveyed, Weber County has the lowest overall rate of safety belt use (83.4%, -1.8%).
- Statewide, safety belt use on highways (89.7%) exceeds safety belt use on local roads (84.4%) by four percentage points.
- Study results show that Salt Lake County has the highest safety belt use rates on both local roadways (88.9%) and highways (92.6%).
- Weber County has the lowest safety belt use rate on highways (84.4%) and Washington County has the lowest rate on local roadways (81.3%).

Child Restraint Use

- The weighted statewide safety belt use rate for children age 0-10 is 92.9%, a statistically significant increase of 5.2% over 2004.
- Child restraint use increased among children age 0-4 from 92.7% in 2004 to 94.8% in 2006 (+2.1%). Usage among children age 5-10 also increased from 84.4% to 87.0% (+2.6%).
- The safety restraint use rate among children age 0-4 is highest in Salt Lake County (99.4%), which demonstrates an increase of 5.6% from the 2004 rate.
- Safety restraint use of children age 0-4 is lowest in Washington County (82.0%), and was unchanged from 2004.
- Davis County was the only area that showed a statistically significant decrease in usage among children age 0-4 (95.0%, -2.5%).
- Among children age 5-10, Salt Lake County had the highest safety restraint use rate and the largest increase (96%, +12.8%).

TABLE 3: COUNTY SAFETY RESTRAINT USE AMONG CHILDREN BY AGE (2004 - 2006)

County	Age	2004	2006	% Change
Cache	0-4 Yrs	87.8%	94.5%	+ 6.7%
	5-10 Yrs	85.2%	85.9%	+ 0.7%
	Total	86.2%	89.3%	+ 3.1%
Davis	0-4 Yrs	97.5%	95.0%	- 2.5%
	5-10 Yrs	89.9%	89.1%	- 0.8%
	Total	93.0%	91.7%	- 1.3%
Salt Lake	0-4 Yrs	93.8%	99.4%	+ 5.6%
	5-10 Yrs	83.2%	96.0%	+ 12.8%
	Total	87.5%	97.8%	+ 10.3%
Utah	0-4 Yrs	93.4%	97.6%	+ 4.2%
	5-10 Yrs	84.4%	84.4%	- 0.05%
	Total	87.9%	89.6%	+ 1.7%
Washington	0-4 Yrs	82.0%	82.0%	+ 0.01%
	5-10 Yrs	79.9%	80.8%	+ 0.9%
	Total	80.6%	81.4%	+ 0.8%
Weber	0-4 Yrs	93.5%	94.0%	+ 0.5%
	5-10 Yrs	81.9%	83.5%	+ 1.6%
	Total	85.8%	87.1%	+ 1.3%
Overall		84.4%	87.7%	+ 5.2%

REPORT PREPARED BY

UTAH DEPARTMENT OF PUBLIC SAFETY

Robert L. Flowers, Commissioner

UTAH HIGHWAY SAFETY OFFICE

*David A. Beach, Director
Kristy Rigby, Program Manager
3888 West 5400 South
Salt Lake City, Utah 84118
(801) 957-8570
www.highwaysafety.utah.gov*

DATA ANALYSIS

Michael R. Overson

*Special thanks to the Utah Highway Patrol
for providing the surveyors to help conduct the study.*

